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EVALUATION OF THE REFERRAL DRIVING PERFORMANCE EVALUATION PROGRAM—FOLLOW-UP REPORT

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13. ABSTRACT (Maximum 200 words)

This study evaluated the safety impact of the new Referral Driving Performance Evaluation (RDPE) drive test program. The 3-year prior accident and citation rates for drivers taking the RDPE drive tests were compared to the general driving population and to drivers who passed the Special Drive Test (SDT) in an earlier DMV study. The results indicated that in every age and gender category except one, drivers in the RDPE program had much higher prior accident and citation rates than did drivers in general. This finding supported the department's policy of testing drivers referred for medical and other reasons. The prior accident rates for drivers who passed the RDPE tests were not significantly different from those for drivers who failed the tests. Hence, the validity of using RDPE test results as indicators of accident risk was not conclusively supported by the data. Contrary to expectation, drivers who passed the RDPE tests also had accident rates similar to those for drivers who passed the SDT, which indicated that the RDPE tests were no better than the SDT at distinguishing between higher- and lower-risk drivers. However, because the RDPE tests fail a much higher percentage of referral drivers than does the SDT, the tests do result in accident savings.

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SUMMARY

Introduction

- This follow-up report augments the findings of the preliminary Referral Driving Performance Evaluation (RDPE) report (Masten, 1998). Contained within are the internal-consistency reliabilities of the Basic DPE (BDPE) and Supplemental DPE (SDPE); descriptions of the post-test suspension/revocation rates and license restriction rates for drivers who passed and failed the BDPE and SDPE; and comparisons of prior accident and citation rates between RDPE drivers and the Southern California general driving population, between drivers who passed and failed the BDPE or SDPE, and between drivers statewide who passed the Special Drive Test (SDT) in an earlier Research and Development study (Hagge, 1995) and drivers who passed the BDPE or SDPE.

- The objective of the new referral drive tests is to remove or reduce some of the deficiencies found in the 1995 evaluation of the SDT.

- After the necessary changes are made to the RDPE program, another study will be conducted to determine whether the objectives of the program have been met.

Data Collection

- The results of this report are based on the score sheets and driving records for 460 RDPE cases sent by 49 field offices between March 16th and April 10th, 1998. The data collection and screening procedures are described in the preliminary report. Only drivers referred from the department's Driver Safety Branch to a field office are included in the study.

- Driver record information, including 3-year prior accident and citation rates, was extracted from the DL masterfile 6 weeks after the last day of testing in the study.

- A 1% sample of drivers from Ventura, Los Angeles, San Bernardino, Orange, Riverside, San Diego, and Imperial counties was used as a comparison group to determine whether RDPE drivers have higher accident and citation rates than does the Southern California general driving population. The accident and citation rates for the Southern California sample were standardized to reflect the same age and gender composition as present in the RDPE sample.

- The accident and citation rates for drivers tested under the SDT program were obtained from Hagge's 1995 statewide evaluation of the SDT program. These rates were standardized for age and gender to match the RDPE sample.

Results

- The internal-consistency reliabilities of the BDPE and SDPE indicate a satisfactory level of homogeneity among the items on each test.

- In every age and gender category except one, drivers in the RDPE program had much higher prior accident and citation rates than did licensed Southern California drivers in general.

- The 3-year prior accident rate for drivers who passed the BDPE is not significantly different from that for drivers who failed the BDPE ($p = .18$). However, BDPE passes had a significantly higher 3-year prior citation rate compared to drivers who failed the BDPE ($p = .04$).

- Drivers who passed the SDPE did not differ significantly from those who failed on 3-year prior accident rate ($p = .25$) or citation rate ($p = .44$).

- BDPE and SDPE passes had accident rates that are very similar to drivers who passed under the prior SDT. In addition, BDPE passes had a citation rate similar to that for SDT passes, while SDPE passes had a lower citation rate than did SDT passes.

- 73% of subjects who failed the RDPE were ultimately suspended or revoked within 6 weeks following the study. In addition, 87% of the RDPE failures for whom there was evidence of a previous drive test (retests) were under license suspension or revocation during this 6-week period.

- Only 21% of RDPE passes and 19% of RDPE fails had a license restriction other than corrective lenses on record either before, or within 6 weeks after, the end of testing for the study.

Discussion and Conclusions

- The internal-consistency reliabilities of the BDPE and SDPE are acceptable, and are expected to increase slightly if steps are taken to ensure that examiners consistently administer the freeway portion of each test.

- The much higher prior accident and citation rates for RDPE drivers compared to those for other drivers in Southern California support the current policy of testing potential problem drivers who are brought to the department's attention by field office staff, medical and law enforcement personnel, and other concerned citizens.

- Although performance on the BDPE and SDPE was not correlated with prior accident frequency, this could reflect the biasing effects of exposure (miles driven). Miles driven, which was not available in this study, is known to correlate with road test component performance and accidents, and this relationship would tend to obscure any intrinsic relationships between test performance and accident rate. Had mileage data been available, it is entirely possible that those who passed the test would have a lower accident rate per mile driven than those who failed.

- The BDPE and SDPE were no better than the SDT at distinguishing between higher- and lower-risk drivers, but this finding is also subject to the biasing effects of exposure. A more important index of the value of the RDPE tests is that they provide a more stringent test of driver competency, as evidenced by their higher overall fail rate.

- The use of the RDPE tests instead of the SDT is estimated to have resulted in over 1,000 additional Driver Safety referral failures annually in Southern California alone. Furthermore, the prior accident risk level for this failed group is 3 times higher than that for the general Southern California driving population. In other words, the new tests are superior to the previous SDT in failing or "screening-out" high risk drivers, thereby preventing more future accidents than would occur under the SDT.

- Because prior accident rate is correlated with driving exposure, it is of questionable value as an ultimate criterion for validating the RDPE or any other drive test. Due to this fact, and the small sample sizes that imposed limits on the statistical power of the analyses, caution must be exercised in drawing conclusions from the validation results.

- Even though examiners often did not take or recommend a revocation action against drivers they considered to be unsafe (as indicated in the preliminary report), a license suspension or revocation was almost always ultimately taken by a Driver Safety hearing officer upon review.

- The results reinforce the finding from the preliminary evaluation that field offices and Driver Safety very rarely use license restrictions to limit the driving exposure of RDPE drivers. The use of freeway restrictions was particularly low, given the high proportion of RDPEs administered without freeway driving. Field office personnel should probably be reminded to use the "02" restriction code for restricting freeway driving, instead of manually writing the comments as a "50" restriction code.

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INTRODUCTION

This report augments the findings of the preliminary Referral Driving Performance Evaluation (RDPE) report (Masten, 1998). Contained within are internal-consistency reliability measures for the Basic DPE (BDPE) and Supplemental DPE (SDPE), and descriptions of the post-test license suspension and revocation rates and license restrictions for drivers who passed and failed the BDPE and SDPE. Also included are comparisons of prior accident and conviction rates between RDPE drivers and the general Southern California driving population, between drivers who passed or failed the BDPE or the SDPE, and between drivers statewide who passed the Special Drive Test (SDT) and drivers who passed the BDPE or SDPE. Copies of the DL 11D Driver Safety/Field Referral Form and the RDPE score sheets are provided in the Appendix.

Before implementation of the RDPE, the SDT was being used statewide to evaluate the competency of referral drivers. Hagge (1995) identified several deficiencies in this program. The study found that the accident rate for SDT passes was not significantly different from that for SDT fails, and that the conviction rate for passes was significantly higher than the rate for fails. Even more troubling was the fact that SDT passes had a much higher accident rate than did the general driving population. These findings failed to establish the risk-predictive validity of the SDT. A multidivisional task force was subsequently convened to address the problems with the SDT program, and redesigned the program around the DPE testing model. The RDPE program is the product of this effort. The RDPE program was implemented in 1996 and is now in use in 64 Southern California field offices. The SDT is still being used elsewhere in the state.

This report and the preliminary report together constitute a first-phase evaluation of the RDPE program. After any necessary changes are made to the RDPE process, another study will be conducted to determine whether the broad objectives of the program have been met.

METHODS

Data Collection

The results presented in this report are based on score sheets and driver records for 460 RDPE cases processed in 49 Southern California DPE field offices between March 16th and April 10th, 1998. The data collection procedures are contained in the preliminary evaluation report. Only drivers referred from the department's Driver Safety Branch to a field office are included in the study. The driver records for these cases were extracted from the DL masterfile on May 27, 1998, approximately 6 weeks after the last drivers in the study were tested.

Data Analysis

The internal-consistency reliabilities of the BDPE and SDPE were computed using the Kuder-Richardson (K-R 20) formula. In general, this type of reliability indicates the degree of uniformity among test items and the extent to which the test items measure a common domain of knowledge or skill. It also gauges the overall precision of the test as a measurement instrument. A test that is highly reliable should result in very similar scores across repeated testings of the same people (assuming a fixed knowledge level between test administrations). The reliability coefficient can range from 0 to 1, where a value of 0 indicates no similarity between the test items and a value of 1 denotes that the items are perfectly homogenous. In general, coefficients closer to 1 are more desirable.

The accident and citation rates for study subjects during the 3 years prior to RDPE testing were compared to those for a 1% random sample of the Southern California licensed driving population using a statistical significance test known as a one-sample *t* test. The Southern California sample is a subset of a 1% random sample of the 1992 California statewide driving population. This statewide sample consists of all licensed California drivers who have "01" as the last two digits of their driver license number. Southern California drivers were identified by the presence of a county of residence code corresponding to one of the following counties: Ventura, Los Angeles, San Bernardino, Orange, Riverside, San Diego, and Imperial. The purpose of comparing the 3-year prior driver records was to determine whether RDPE drivers pose a higher or lower actuarial risk than do drivers of the same age and gender in the general driver populations (statewide and in Southern California). The Southern California and statewide accident and citation rates were also compared to determine whether meaningful regional differences exist.

The 3-year prior accident and citation rates for drivers who passed and failed the BDPE and SDPE were also compared, using a statistical significance test known as the Games and Howell independent-samples *t* test. This test was used in lieu of the regular independent-samples *t* test because the homogeneity of variance and equal sample size assumptions required for the standard *t* test were violated for all of the comparisons. The purpose of these analyses was to determine the ultimate criterion validity of the tests (i.e., whether performance on each test is a good indicator of accident risk).

An alpha level (α) of .05 was used to determine the statistical significance of all *t* tests, meaning that a difference in group means is considered to be "true" if its likelihood of occurrence by chance alone (p) is less than 5 times out of 100.

A measure of effect size called eta squared (ω^2) was computed for each *t* test in which p was less than the .05 criterion for statistical significance. Eta squared is an index of the amount of variability in a dependent variable (e.g., accident involvement) that is accounted for by variability in an independent variable (e.g., test result). Eta squared can theoretically range from 0 to 1, with zero indicating no relationship at all between the dependent and independent variables, and 1 indicating that the variation in the independent variable accounts for 100% of the variation in the dependent variable.

A measure of variability due to sampling error called mean square error (*MSE*) is also included with all *t* test results.

The accident and conviction rates for drivers who passed the BDPE and SDPE were compared to those for drivers who passed the SDT in Hagge's 1995 study, to determine whether the BDPE and SDPE do a better job than the SDT at screening-out high-risk drivers.

RESULTS

Test Reliability

Because a high percentage (62%) of RDPEs were administered without freeway driving (a violation of department policy that was highlighted in the preliminary report), the internal-consistency reliabilities of the BDPE and the SDPE were computed without including the freeway items. The internal-consistency reliability of the Area DPE (ADPE) was not computed because too few subjects were referred for an ADPE to accurately estimate the statistic. The score sheets for drivers who automatically failed the BDPE or SDPE due to a Critical Driving Error (CDE) were also excluded from the reliability calculations, because not all test items were scored for these individuals. There were 67 BDPE and 114 SDPE score sheets excluded for this reason. The internal-consistency reliabilities of the BDPE and SDPE were .65 ($n = 120$) and .76 ($n = 151$), respectively, which indicate a satisfactory level of homogeneity among the items on each test. These reliability coefficients are benchmarks that will be compared to the internal-consistency coefficients obtained in the next phase of the RDPE process evaluation, which will be conducted after the necessary changes are made to the program. (In the latter evaluation, an attempt will also be made to compare the reliability estimates of the individual field offices to determine the degree of scoring uniformity among them.)

Driver Record Comparisons

The driver records for seven of the 418 RDPE cases were unavailable at the time of the DL file extract, which left 411 cases for the driver record analyses.

Table 1 presents the prior 3-year total accident and citation rates for RDPE drivers and the randomly selected 1% sample of Southern California licensed drivers by age group and gender. Citations include convictions, failures to appear in court or pay fines, and traffic violator school citation-dismissals. The RDPE results are for BDPE, SDPE, and ADPE subjects combined.

In every age and gender category represented in the table, RDPE drivers have a much higher prior accident rate than do licensed Southern California drivers in general. Except for women aged 39 or younger, RDPE drivers also have a much higher prior citation rate than does the Southern California general driving population.

Table 1

Number of Drivers (*n*) and Prior 3-Year Accident and Citation Rates by Age Group and Gender for RDPE Drivers and the Southern California Licensed Driver Population

Total Accidents

Age group / Gender	RDPE		Southern CA licensed drivers	
	n	Accidents per 100 drivers	*n*	Accidents per 100 drivers
39 or younger				
men	19	47.4	32,053	23.0
women	15	40.0	26,278	17.1
40-54				
men	25	44.0	12,618	17.6
women	20	30.0	11,355	12.0
55-69				
men	49	42.9	7,445	15.1
women	21	23.8	6,962	8.7
70-84				
men	124	40.3	2,591	14.0
women	83	32.5	2,612	9.5
85 or older				
men	32	25.0	114	18.4
women	23	47.8	92	6.5

Total Citations

Age group / Gender	RDPE		Southern CA licensed drivers	
	n	Citations per 100 drivers	*n*	Citations per 100 drivers
39 or younger				
men	19	131.6	32,053	114.3
women	15	40.0	26,278	56.5
40-54				
men	25	76.0	12,618	57.7
women	20	55.0	11,355	30.4
55-69				
men	49	55.1	7,445	33.7
women	21	33.3	6,962	13.9
70-84				
men	124	37.1	2,591	17.4
women	83	25.3	2,612	8.3
85 or older				
men	32	40.6	114	14.9
women	23	30.4	92	5.4

Note. Figures for the RDPE include drivers who took a BDPE, SDPE, or ADPE. The rates for the Southern California driving population are based on a 1% sample of all California drivers.

Age and gender are known to have effects on accident and conviction rates. Because the proportional representation of subjects in each age and gender category is different for RDPE and Southern California drivers, their overall accident and citation rates cannot be directly compared to determine the increased (or decreased) risk associated with being an RDPE referral. In order to determine the risk differential attributable to being an RDPE referral, the accident and citation rates for the Southern California general driver population were standardized to reflect the same proportion of drivers in each age and gender category as was represented by the RDPE drivers. The California statewide rates were similarly standardized to the RDPE population to allow comparison. The overall accident and citation rates for RDPE drivers and the unstandardized and standardized rates for drivers of similar age and gender in the Southern California and statewide driving populations are presented in Table 2.

Table 2

Prior 3-Year Accident and Citation Rates for RDPE Subjects and Southern California and Statewide Licensed Driver Populations

Group	Total accidents per 100 drivers	Total citations per 100 drivers
RDPE drivers	37.5	44.3
Southern CA licensed drivers	17.4	65.0
Statewide licensed drivers	16.3	63.2
	Standardized to RDPE	
Southern CA licensed drivers	13.5	25.5
Statewide licensed drivers	12.9	24.8

Note. The rates for the Southern California and statewide driving populations are based on a 1% sample of 1992 licensed drivers. The Southern California and statewide accident and citation rates are standardized to reflect the same age and gender composition as in the RDPE sample. Two-tailed statistical significance tests found that RDPE and standardized Southern California drivers differed significantly on both accident rate ($t[410] = 7.29$, $MSE = 0.03$, $p < .001$, $\omega^2 = .11$) and citation rate ($t[410] = 4.65$, $MSE = 0.04$, $p < .001$, $\omega^2 = .05$).

Only minor differences were observed between the accident and citation rates for Southern California drivers and the statewide California driving population, irrespective of whether the rates were standardized to reflect the same age and gender composition as was represented by the RDPE sample. The relationships of the standardized Southern California and statewide driver accident and conviction rates to those of the RDPE drivers are illustrated in Figure 1.

The prior accident rate for RDPE drivers is almost 3 times higher than the standardized rate for drivers of similar age and gender in the Southern California driving population, $t(410) = 7.29$, $MSE = 0.03$, $p < .001$, $\omega^2 = .11$. The probability (p) associated with this statistical test indicates that there is less than 1 chance in 1,000 that a difference this large or larger would have been observed by chance alone. Furthermore, the ω^2 value indicates that 11% of the variation in the accident rates was accounted for by whether or not the driver was an RDPE referral.

The much higher accident rate for RDPE drivers compared to Southern California drivers in general can be partially attributed to the fact that some RDPE subjects were referred for testing because they were involved in a traffic accident. To determine the extent to which the presence of these cases inflated the accident rate for the RDPE group, the 50 cases in which the DL 11D referral form indicated that the driver was referred because of an accident or near accident were removed and the accident rate for the remaining subjects was calculated. This reduced the accident rate from 37.5 to 27.7 accidents per 100 drivers. This lower rate is still over twice as high as the 13.5 standardized rate for the Southern California driving population.

The prior citation rate for the RDPE drivers is nearly 2 times higher than the standardized rate for Southern California drivers in general, $t(410) = 4.65$, $MSE = 0.04$, $p < .001$, $\omega^2 = .05$.

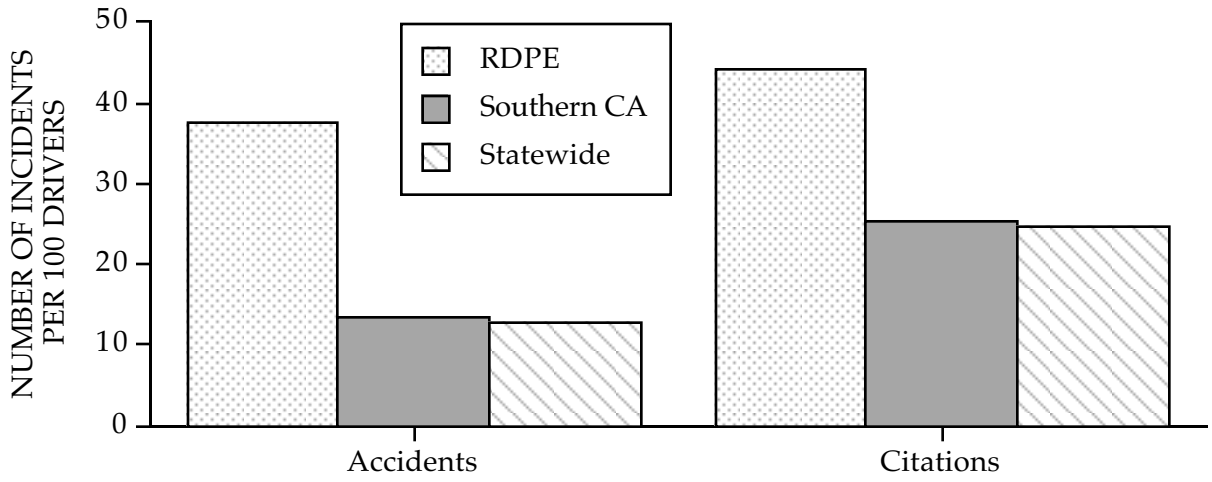

Figure 1. Prior 3-year accident and citation rates for RDPE drivers, and for Southern California and statewide drivers standardized to the RDPE sample.

Table 3 presents the 3-year prior accident and citation rates for drivers passing and failing the various tests. Results are shown for the BDPE, SDPE, and ADPE together (shown in the table as RDPE) and also separately. Results for the SDT are also shown. Results are not shown separately for the ADPE because too few subjects were referred for an ADPE to be able to compute accurate estimates.

The unstandardized SDT rates shown in the table are from Hagge (1995). The standardized SDT rates in the table reflect what would be expected, had the SDT sample been of the same age and gender composition as was represented in the RDPE sample. Standardized rates for SDT passes and fails could not be computed because the data necessary to do so are not available in the 1995 SDT report.

Table 3

Number of Subjects (*n*) and 3-Year Prior Accident and Citation Rates by Test Result for the RDPE (Overall), BDPE, SDPE, and SDT

Test type Test result	*n*	Total accidents per 100 drivers	Total citations per 100 drivers
RDPE	411	37.5	44.3
pass	223	38.1	50.2
fail	188	36.7	37.2
BDPE[a]	154	44.2	50.6
pass	91	37.4	61.5
fail	63	54.0	35.0
SDPE[b]	239	33.9	41.4
pass	119	38.7	45.4
fail	120	29.2	37.5
SDT[c]	295	34.1	49.3
pass	202	35.6	59.9
fail	93	33.3	32.3
		Standardized to RDPE	
SDT	295	33.5	48.4

Note. Figures for the RDPE include all drivers who took a BDPE, SDPE, or ADPE. The SDT rates are from Hagge (1995). The standardized SDT rates reflect what would be expected, had the SDT sample been of the same age and gender composition as the RDPE sample. Standardized rates for SDT passes and fails are not presented because the necessary data were not available in the 1995 report.

[a]BDPE passes and fails did not differ significantly on accident rate ($t[117] = 1.36$, $MSE = 0.12$, $p = .18$), but did on citation rate ($t[144] = 2.10$, $MSE = 0.13$, $p = .04$, $\omega^2 = .02$). [b]SDPE passes and fails did not differ significantly on accident rate ($t[220] = 1.16$, $MSE = 0.08$, $p = .25$) or citation rate ($t[237] = 0.77$, $MSE = 0.10$, $p = .44$). [c]SDT passes and fails did not differ significantly on accident rate ($t[293] = 0.28$, $MSE = 0.08$, $p = .78$), but did on citation rate ($t[293] = 2.07$, $MSE = 0.13$, $p = .04$, $\omega^2 = .01$).

However, because only negligible differences were observed between the overall unstandardized and standardized SDT rates, it is unlikely that using standardized rates for the SDT pass and fail comparison would have made a difference in the results.

No statistically significant differences in accident rates were found between BDPE passes and fails ($t[117] = 1.36$, $MSE = 0.12$, $p = .18$), or between SDPE passes and fails ($t[220] = 1.16$, $MSE = 0.08$, $p = .25$).

A different pattern of results was found for citations. Subjects who passed the BDPE had an 80% higher prior citation rate than did drivers who failed ($t[144] = 2.10$, $MSE = 0.13$, $p = .04$, $\omega^2 = .02$), but the citation rates for subjects who passed and failed the SDPE are not significantly different ($t[237] = 0.77$, $MSE = 0.10$, $p = .44$).

The accident and citation rates for drivers who passed the BDPE are very similar to those for drivers who passed the SDT. Subjects who passed the SDPE also have an

accident rate similar to SDT passes, but have a 32% lower citation rate. These results are illustrated in Figure 2.

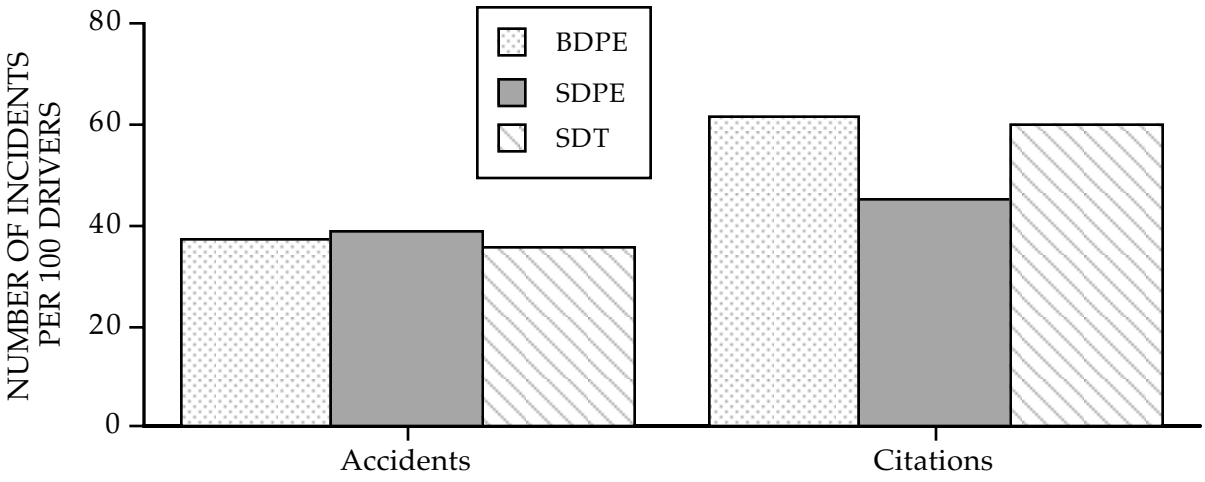

Figure 2. Prior 3-year accident and citation rates for drivers who passed each type of test.

Suspensions and Revocations

The driver record analysis also revealed that 73% of subjects who failed an RDPE test (BDPE, SDPE, or ADPE) were suspended or revoked at the time of the driver record extract (6 weeks after completion of testing for the study), while only 4% of RDPE passes had suspended or revoked licenses at that time. In addition, 87% of fails who were identified on the DL 11D as retest subjects had a suspended, revoked, or canceled license. These findings indicate that a license suspension or revocation was almost always ultimately taken for drivers who failed the RDPE upon review by a Driver Safety hearing officer, in spite of the fact that the examiners often failed to take or recommend a revocation action against drivers they considered to be unsafe.

License Restrictions

A review of license restrictions on the driving record revealed that only a small percentage of subjects—21% of RDPE passes and 19% of RDPE fails—had a license restriction other than corrective lenses imposed either before, or within 6 weeks after, the end of testing for the study. The number of each type of restriction is shown in Table 4 for passes and fails separately and combined. The "customized '50' restriction" table entry consists of the restrictions presented in Table 5.

Table 4

Restrictions by RDPE Test Result

Restriction	Pass	Fail	Total
Corrective lens only	140	118	258
Customized "50" restriction	26	26	52
Sunrise to sunset	13	9	22
Automatic transmission	11	1	12
Right side mirror	8	3	11
Steering knob	6	1	7
Hand controls	4	2	6
Bioptic lens	3	1	4
Area	1	0	1
Provisional licensee	1	0	1
To and from employment	1	1	2
Course of employment	1	1	2
To and from treatment program	1	1	2
Total restrictions	216	164	380
No restriction	69	59	128

Note. The table entries are not independent; 15% of the cases had more than one restriction recorded on their driving record.

Table 5

Customized "50" Restriction Contents by RDPE Test Result

Contents	Pass	Fail	Total
No freeway	16	5	21
Area	8	2	10
Special instruction permit	5	16	21
Left foot accelerator	1	0	1
Panoramic rearview mirror	1	0	1
Time restriction	1	0	1
Limited term	1	0	1
Total restrictions	33	23	56
Not indicated	1	5	6

Note. The table entries are not independent; 19% of the cases had more than one restriction indicated.

Note that although there are no freeway restrictions based on the "02" restriction code in Table 4, some freeway restrictions were indeed assigned to drivers as a "customized '50' restriction." However, considering the high number of RDPE tests given without freeway driving, this number of freeway restrictions is still far too low.

DISCUSSION AND CONCLUSIONS

The internal-consistency reliabilities of the BDPE and SDPE indicate a satisfactory level of homogeneity among the items on each test. The reliabilities are expected to increase slightly if steps are taken to ensure that examiners consistently administer the freeway portion of each test, because reliability tends to increase as the number of items on a test increases.

RDPE study subjects had much higher prior accident and citation rates than did the sample of licensed Southern California drivers of the same age and gender composition. These results support the policy of testing potential problem drivers who are brought to the department's attention by field office staff, medical and law enforcement personnel, and other concerned citizens.

At first blush, the result showing BDPE accident rates for passes and fails to not be significantly different suggests that the test is not a valid instrument for measuring accident potential (although the direction of the difference is more supportive than not of the validity of using test performance as an indicator of level of safety). However, this finding might instead reflect the biasing effect of exposure differences (miles driven) between the BDPE passes and fails. Miles driven, which was not available in this study, is known to correlate modestly with road test component performance (Jones, 1978), accidents (Burg, 1968; Frinke & Ratz, 1984; Jones, 1978; Peck & Kuan, 1983), and citations (Burg, 1978; Harrington, 1971). These studies have shown that, as a general rule, increases in exposure correlate with increased likelihood of accident involvement, increased traffic law violations, and higher road test component scores.

Differences in exposure rates were not experimentally controlled for in this study, but citation rate has been used as a very rough indicator of exposure level in past studies (Clarke, 1996). If the use of citation rates as a rough measure of exposure is accepted, then finding that BDPE passes had a significantly higher rate of convictions than did BDPE fails does not necessarily negate the validity of the test, because those who passed are assumed to be more competent drivers who therefore tend to drive more often and in more risky traffic conditions. Their potentially greater driving exposure, which is suggested by their higher citation rate, would predispose them to having more accidents, which works against finding a result that would support the ultimate validity of the test. Because drive tests are designed to assess driving competence and not necessarily safety risk, accident rate may not be the best criterion for evaluating the validity of the test, particularly when not adjusted for miles driven. (Romanowicz and Hagge [1996] found the DPE to have construct validity, meaning that it does a good job of discriminating between drivers at different skill levels.)

Comparisons between SDPE passes and fails are subject to the same limitations discussed above. The failure to find a significant relationship with previous accident rates (per driver) could reflect the confounding effects of mileage driven. (Higher mileage drivers would be expected to perform better on the road test and have more

accidents.) Had mileage data been available, it is entirely possible that those who passed the test would have a lower accident rate per mile driven than those who failed.

The 1995 statewide SDT evaluation found that the SDT was not very effective at screening out high-risk drivers. Specifically, SDT passes had the same accident rate as did SDT fails, and the rates of both groups were higher than those for the general driving population. It was expected that the RDPE program would be more proficient than the SDT at weeding-out high-risk drivers. This does not appear to be the case in terms of the per driver accident rates of the passes versus fails. However, this finding is subject to the above limitations (no mileage data). We believe a more important index of the value of the RDPE tests is that they provide a more stringent test of driver competency, as evidenced by their higher overall failure rate.

The combined RDPE failure rate of 47.9% is 16.8 percentage points higher than the 31.1% rate for the SDT. The use of the RDPE tests instead of the SDT is estimated to have resulted in over 1,000 additional Driver Safety referral failures annually in Southern California alone. (This assumes that the Southern California SDT failure rate is the same as the statewide rate found in the 1995 study.) The prior accident risk level for this failed group is 3 times higher than that for the general Southern California driving population, and therefore the use of the more difficult RDPE tests has resulted in a substantially increased potential for preventing accidents.

Due to the lack of control of driving exposure differences between the groups, and to the small sample sizes that greatly limit the statistical power of the analyses, caution should be exercised in drawing conclusions from the criterion validation results. These limitations will be lessened in the next phase of the RDPE evaluation because RDPE referrals will be surveyed to determine their level of driving exposure and larger sample sizes will be used.

The review of driver records revealed that, even though examiners often failed to take or recommend a revocation action against drivers they considered to be unsafe, a license suspension or revocation was almost always ultimately taken following test failure. However, the review also produced results that reinforce the finding in the preliminary report, that field offices and Driver Safety very rarely use license restrictions to limit the driving exposure of RDPE drivers. Freeway restrictions were particularly underused and, when present, were always put into the restriction comments subsection of the driver's record under restriction code "50" instead of using the unique "02" restriction code available for this purpose. The underuse of freeway restrictions stands out even more when one considers the prevalence of cases in which the freeway portion of the drive test was not administered.

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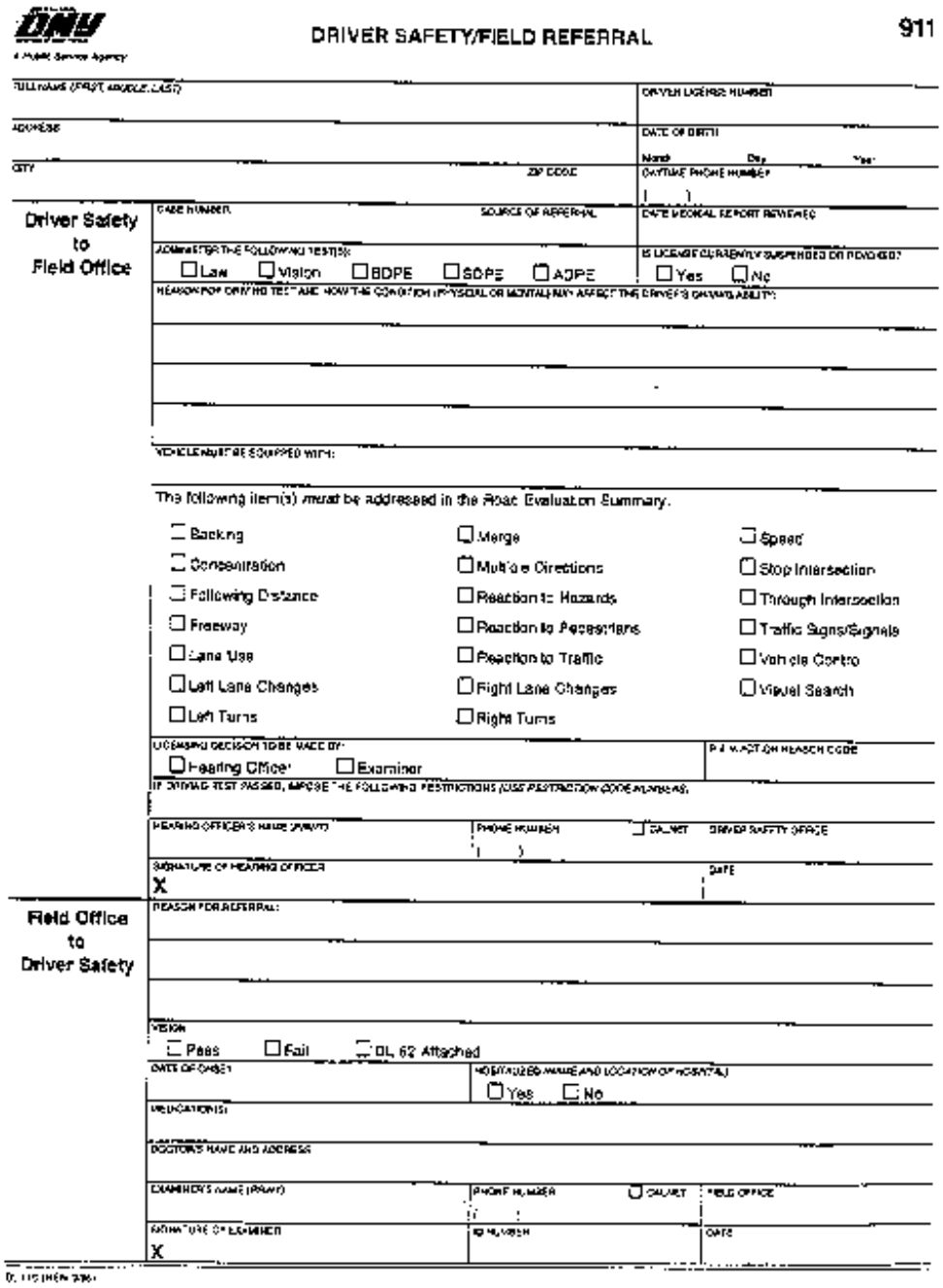
APPENDIX



DRIVER SAFETY/FIELD REFERRAL

911

FULL NAME (FIRST, MIDDLE, LAST)

DRIVER LICENSE NUMBER

ADDRESS

DATE OF BIRTH
Month Day Year

CITY ZIP CODE

DAYTIME PHONE NUMBER
( )

Driver Safety to Field Office

CASE NUMBER SOURCE OF REFERRAL

DATE MEDICAL REPORT RECEIVED

ADMINISTER THE FOLLOWING TEST(S):
☐ Law ☐ Vision ☐ BDPE ☐ SDPE ☐ ADPE

IS LICENSE CURRENTLY SUSPENDED OR REVOKED?
☐ Yes ☐ No

REASON FOR DRIVING TEST AND HOW THE CONDITION (PHYSICAL OR MENTAL) MAY AFFECT THE DRIVER'S DRIVING ABILITY:

VEHICLE MUST BE EQUIPPED WITH:

The following item(s) *must* be addressed in the Road Evaluation Summary.

☐ Backing	☐ Merge	☐ Speed
☐ Concentration	☐ Multiple Directions	☐ Stop Intersection
☐ Following Distance	☐ Reaction to Hazards	☐ Through Intersection
☐ Freeway	☐ Reaction to Pedestrians	☐ Traffic Signs/Signals
☐ Lane Use	☐ Reaction to Traffic	☐ Vehicle Control
☐ Left Lane Changes	☐ Right Lane Changes	☐ Visual Search
☐ Left Turns	☐ Right Turns	

LICENSING DECISION TO BE MADE BY:
☐ Hearing Officer ☐ Examiner

P.C. SECTION REASON CODE

IF DRIVING TEST PASSED, IMPOSE THE FOLLOWING RESTRICTIONS (USE RESTRICTION CODE NUMBERS):

HEARING OFFICER'S NAME (PRINT) PHONE NUMBER ☐ DMV DRIVER SAFETY OFFICE
( )

SIGNATURE OF HEARING OFFICER
X

DATE

Field Office to Driver Safety

REASON FOR REFERRAL:

VISION
☐ Pass ☐ Fail ☐ DL 62 Attached

DATE OF ONSET

HOSPITALIZED (NAME AND LOCATION OF HOSPITAL)
☐ Yes ☐ No

MEDICATION(S):

DOCTOR'S NAME AND ADDRESS

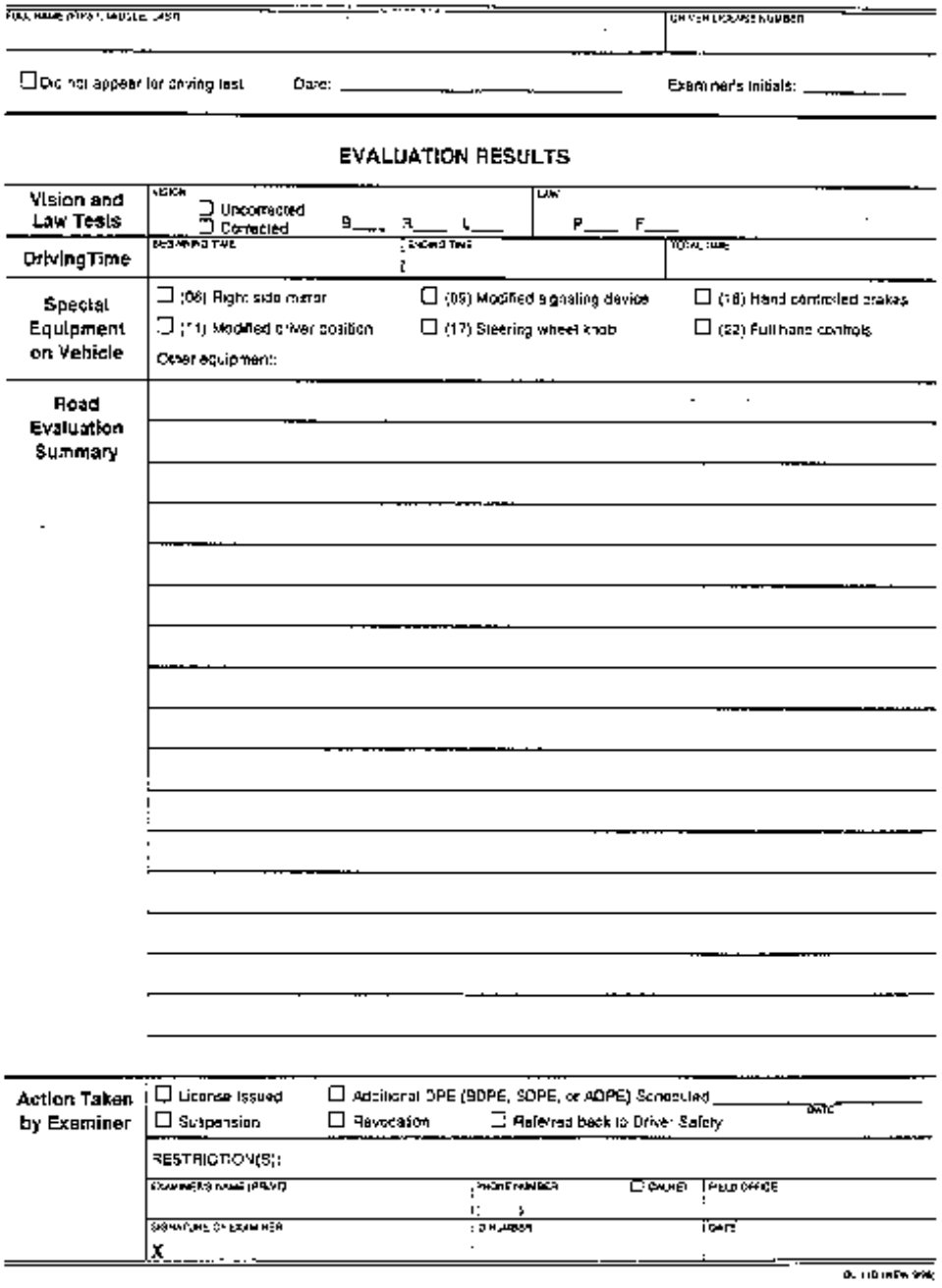
EXAMINER'S NAME (PRINT) PHONE NUMBER ☐ DMV/MT FIELD OFFICE
( )

SIGNATURE OF EXAMINER
X

ID NUMBER

DATE

DL 119 (REV. 3/96)



FULL NAME (FIRST, MIDDLE, LAST) | DRIVER LICENSE NUMBER

☐ Did not appear for driving test Date: _____ Examiner's initials: _____

EVALUATION RESULTS

Vision and Law Tests	VISION ☐ Uncorrected ☐ Corrected B___ R___ L___ LAW P___ F___
Driving Time	BEGINNING TIME | ENDING TIME | TOTAL TIME
Special Equipment on Vehicle	☐ (06) Right side mirror ☐ (09) Modified signaling device ☐ (16) Hand controlled brakes ☐ (11) Modified driver position ☐ (17) Steering wheel knob ☐ (22) Full hand controls Other equipment:
Road Evaluation Summary	

Action Taken by Examiner	☐ License Issued ☐ Additional DPE (SDPE, SDPE, or ADPE) Scheduled _____ DATE ☐ Suspension ☐ Revocation ☐ Referred back to Driver Safety RESTRICTION(S):
EXAMINER'S NAME (PRINT) | PHONE NUMBER ( ) | ☐ CALNET | FIELD OFFICE	
SIGNATURE OF EXAMINER X | CII NUMBER | DATE	

DL 110 (REV. 9/98)

DMV – A Public Service Agency

DRIVING PERFORMANCE EVALUATION SCORE SHEET

To pass, you must have no more than 3 errors marked for items 9–14 under PRE-DRIVE CHECKLIST, no marks in the CRITICAL DRIVING ERROR section, and no more than 15 errors marked for the Scoring Maneuvers.

APPLICANT'S SIGNATURE: X

EVALUATION RESULT

Number of errors:

☐ Passing ☐ Unsatisfactory

PRE-DRIVE CHECKLIST

1. Driver window
2. Windshield
3. Rear view mirrors
4. Turn signals F / R
5. Brake lights
6. Tires
7. Foot brake
8. Horn
9. Emergency/parking brake
10. Arm signals
11. Windshield wipers
12. Defroster
13. Emergency flasher
14. Headlights
15. Passenger door
16. Glove box
17. Seat belts

CRITICAL DRIVING ERROR

- Intervention by examiner
- Strikes object
- Disobeys traffic sign or signal
- Disobeys safety personnel
- Dangerous maneuver
- Speed
- Auxiliary equipment use
- Lane violation

PARKING LOT DRIVING (1, 2)

- Traffic check
- Speed

CURVE

- Entering speed
- Through speed
- Lane position

FWY OR HWY

Entering
- Traffic check
- Signal
- Speed
- Spacing
- Lane position

Merge
- Traffic check
- Signal
- Speed
- Spacing
- Lane position
- Steering control

Lane Use
- Traffic check
- Speed
- Spacing
- Lane position

Exiting
- Traffic check
- Signal
- Speed
- Spacing
- Lane position
- Steering control

INTERSECTIONS (1 2 3 4 5 6 7 8)

Through
- Traffic check
- Speed
- Unnecessary stop

Stop
- Traffic check
- Speed
- Full stop
- Gap or Limit line

Start
- Traffic check
- Yield
- Speed

LANE CHANGE (L, R)

- Traffic check
- Signal
- Speed
- Spacing
- Steering control

STRAIGHT BUSINESS AND RESIDENTIAL (B, R)

- Traffic check
- Speed
- Spacing
- Lane position

STREET PARK (E, X)

- Traffic check
- Signal
- Speed
- Parking
- Parallel
- Backing

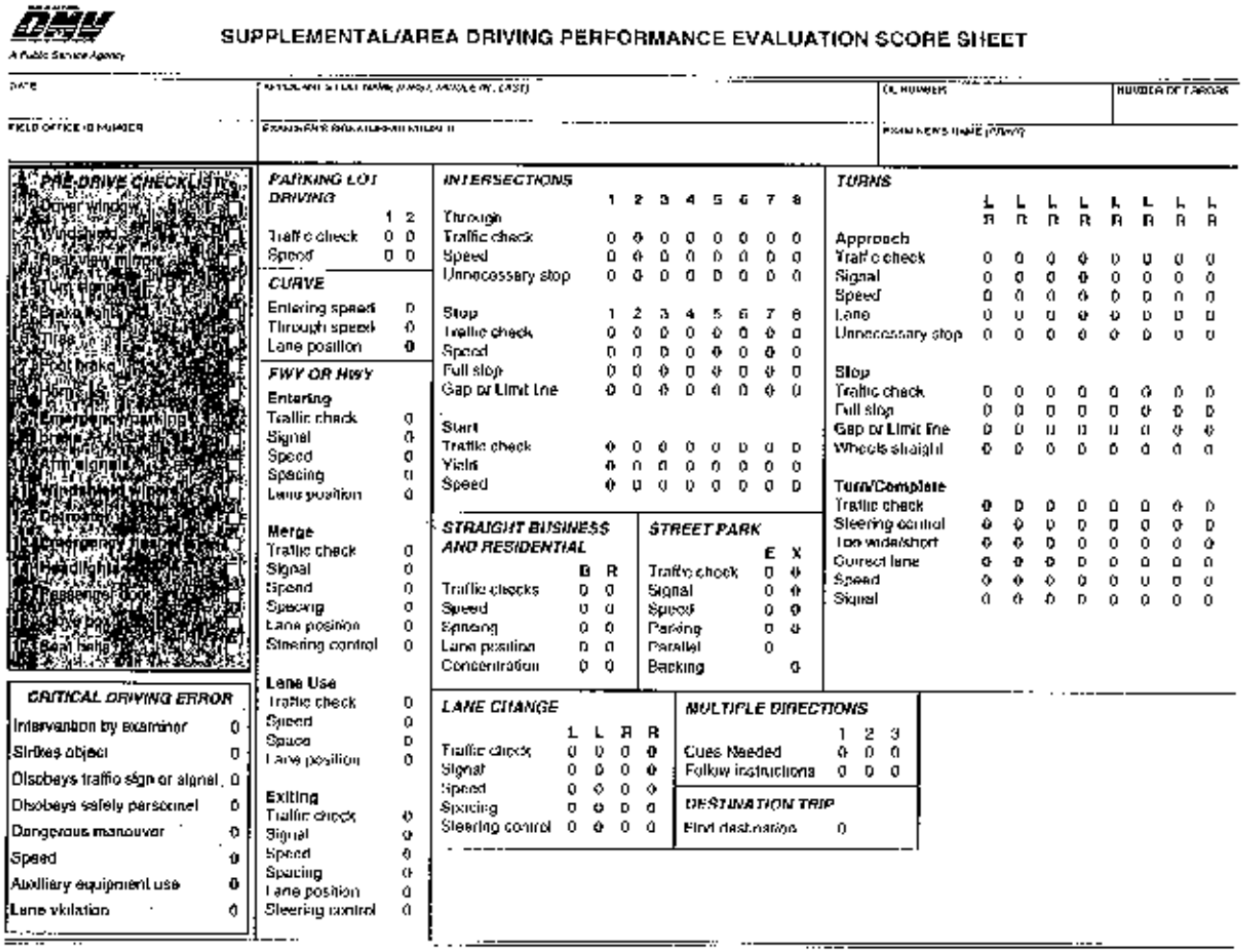
TURNS (LEFT 1 2 3 4; RIGHT 1 2 3 4)

Approach
- Traffic check
- Signal
- Speed
- Lane
- Unnecessary stop

Stop
- Traffic check
- Full stop
- Gap or Limit line
- Wheels straight

Turn/Complete
- Traffic check
- Yield
- Steering control
- Too wide/short
- Correct lane
- Speed
- Signal

COMMENTS



DMV
A Public Service Agency

SUPPLEMENTAL/AREA DRIVING PERFORMANCE EVALUATION SCORE SHEET

DATE

FIELD OFFICE ID NUMBER

APPLICANT'S LAST NAME (FIRST, MIDDLE IN., LAST)

EXAMINER IDENTIFICATION NUMBER

DL NUMBER

NUMBER OF ERRORS

INTERPRETER'S NAME (IF ANY)

PRE-DRIVE CHECKLIST

Driver window
Windshield
Rearview mirrors
Driver seat
Brake
Tires
Foot brake
Horn
Emergency/park brake
Lights
Turn signals
Windshield wipers
Defroster
Steering wheel
Headlights
Passenger door
Passenger seat
Seat belts

CRITICAL DRIVING ERROR

Intervention by examiner	0
Strikes object	0
Disobeys traffic sign or signal	0
Disobeys safety personnel	0
Dangerous maneuver	0
Speed	0
Auxiliary equipment use	0
Lane violation	0

PARKING LOT DRIVING

	1	2
Traffic check	0	0
Speed	0	0

CURVE

Entering speed	0
Through speed	0
Lane position	0

FWY OR HWY

Entering

Traffic check	0
Signal	0
Speed	0
Spacing	0
Lane position	0

Merge

Traffic check	0
Signal	0
Speed	0
Spacing	0
Lane position	0
Steering control	0

Lane Use

Traffic check	0
Speed	0
Space	0
Lane position	0

Exiting

Traffic check	0
Signal	0
Speed	0
Spacing	0
Lane position	0
Steering control	0

INTERSECTIONS

	1	2	3	4	5	6	7	8
Through								
Traffic check	0	0	0	0	0	0	0	0
Speed	0	0	0	0	0	0	0	0
Unnecessary stop	0	0	0	0	0	0	0	0
Stop	1	2	3	4	5	6	7	8
Traffic check	0	0	0	0	0	0	0	0
Speed	0	0	0	0	0	0	0	0
Full stop	0	0	0	0	0	0	0	0
Gap or Limit Line	0	0	0	0	0	0	0	0
Start								
Traffic check	0	0	0	0	0	0	0	0
Yield	0	0	0	0	0	0	0	0
Speed	0	0	0	0	0	0	0	0

STRAIGHT BUSINESS AND RESIDENTIAL

	B	R
Traffic checks	0	0
Speed	0	0
Spacing	0	0
Lane position	0	0
Concentration	0	0

STREET PARK

	E	X
Traffic check	0	0
Signal	0	0
Speed	0	0
Parking	0	0
Parallel	0	
Backing		0

LANE CHANGE

	L	L	R	R
Traffic check	0	0	0	0
Signal	0	0	0	0
Speed	0	0	0	0
Spacing	0	0	0	0
Steering control	0	0	0	0

MULTIPLE DIRECTIONS

	1	2	3
Cues Needed	0	0	0
Follow instructions	0	0	0

DESTINATION TRIP

First destination	0

TURNS

	L R	L R	L R	L R	L R	L R	L R	L R
Approach								
Traffic check	0	0	0	0	0	0	0	0
Signal	0	0	0	0	0	0	0	0
Speed	0	0	0	0	0	0	0	0
Lane	0	0	0	0	0	0	0	0
Unnecessary stop	0	0	0	0	0	0	0	0
Stop								
Traffic check	0	0	0	0	0	0	0	0
Full stop	0	0	0	0	0	0	0	0
Gap or Limit line	0	0	0	0	0	0	0	0
Wheels straight	0	0	0	0	0	0	0	0
Turn/Complete								
Traffic check	0	0	0	0	0	0	0	0
Steering control	0	0	0	0	0	0	0	0
Too wide/short	0	0	0	0	0	0	0	0
Correct lane	0	0	0	0	0	0	0	0
Speed	0	0	0	0	0	0	0	0
Signal	0	0	0	0	0	0	0	0

DL 3294 (NEW 2/98)